296
9X

A.D. 1866, *26th June.* N° 1699.

Applying Elastic Packing to Axletrees, Springs, &c.

LETTERS PATENT to Charles Peachey Holliss, of Clapham Rise, in the County of Surrey, Manufacturer, for the Invention of "IMPROVED MODES OF APPLYING PACKING OF ELASTIC OR FLEXIBLE MATERIALS TO AXLETREES, SPRINGS, AND BEARINGS OF RAILWAY AND OTHER CARRIAGES, TO RAILS, CHAIRS, AND SLEEPERS, AND TO FRAMES OF MACHINES, FOR ISOLATING THEM FROM CONTACT, AND PREVENTING NOISE."

Sealed the 21st December 1866, and dated the 26th June 1866.

PROVISIONAL SPECIFICATION left by the said Charles Peachy Holliss at the Office of the Commissioners of Patents, with his Petition, on the 26th June 1866.

I, CHARLES PEACHEY HOLLISS, of Clapham Rise, in the County of Surrey, Manufacturer, do hereby declare the nature of the said Invention for "IMPROVED MODES OF APPLYING PACKING OF ELASTIC OR FLEXIBLE MATERIALS TO AXLETREES, SPRINGS, AND BEARINGS OF RAILWAY AND OTHER CARRIAGES, TO RAILS, CHAIRS, AND SLEEPERS, AND TO FRAMES OF MACHINES, FOR ISOLATING THEM FROM CONTACT, AND PREVENTING NOISE," to be as follows:—

My Invention consists of improved modes of applying packing of elastic or flexible materials so as to completely surround the parts treated, and isolate them from contact, and by this means prevent vibration and noise. With regard to carriages I completely surround the axletree with some non-conducting material, such as vulcanized or prepared india-rubber, cork, felt,

or any other elastic or flexible material, either separately or combined at the part on which the springs rest, and I attach a bracket at the top side of the axletree on the inner side of the springs to prevent them from moving out of position, and thoroughly isolate the axletree, and consequently the wheels from the springs; I then apply the clips, bolts, and nuts, and screw up in the ordinary manner. In fixing the scroll irons of springs and other parts to the body and under carriage I bore the holes of greater diameter than the bolts, to admit packing of elastic rings round the bolt, and the bolts are made by preference with bevilled necks under the ordinary shaped head, with a corresponding bevilled collar or washer at the opposite end, the borings at each end being bevilled to correspond, by which means the bolts are maintained in a central position; I then apply the elastic or flexible packing round the bolts under the head, collar, and nuts with washers, and between the parts to be attached, and screw up in the ordinary manner. Further, with respect to carriages, I apply the packing in conjunction with an intervening metallic pad to give greater bearing surface between the shackles where the side springs unite with the back springs, in order to prevent contact and avoid noise. This arrangement with the packing round the axletree will be found sufficient for "Hansom" cabs, and materially increase comfort in riding. With regard to the rails, chairs, and sleepers of permanent ways, I apply the elastic or flexible material or packing between the sleeper & chair, or between the chair and rail, and around the bolts, so as thoroughly to interpose the packing between the surfaces, which would otherwise come into contact and produce noise when a train passed over them. To effect this the chair must be hollowed in the inner part to admit of the insertion of the packing, the bolts surrounded with a ring packing, and the borings made larger than the bolts to admit it, in the manner herein-before described with reference to carriages. When this isolating packing is applied between the chair and rail on bridges passing over thoroughfares the noise of a passing train which frightens horses is materially reduced, and all annoyance removed. With regard to the frames of machines, I apply the elastic or flexible material or packing between the floor, foundation, or table, and the supports, legs, or frames of the machine to produce isolation, and the bolts are packed with rings, and when sewing machines are so treated, the noise commonly produced by their working is much decreased, and shafting or gearing of machines may be similarly isolated with a view to the prevention of vibration, friction, and noise.

Holliss' Improved Modes of Applying Elastic Packing to Axletrees, Springs, &c.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Charles Peachey Holliss in the Great Seal Patent Office on the 26th December 1866.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, CHARLES PEACHEY HOLLISS, of Clapham Rise, in the County of Surrey, Manufacturer, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-sixth day of June, in the year of our Lord One thousand eight hundred and sixty-six, in the thirtieth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Charles Peachey Holliss, Her special licence that I, the said Charles Peachey Holliss, my executors, administrators, and assigns, or such others as I, the said Charles Peachey Holliss, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVED MODES OF APPLYING PACKING OF ELASTIC OR FLEXIBLE MATERIALS TO AXLETREES, SPRINGS, AND BEARINGS OF RAILWAY AND OTHER CARRIAGES, TO RAILS, CHAIRS, AND SLEEPERS, AND TO FRAMES OF MACHINES, FOR ISOLATING THEM FROM CONTACT, AND PREVENTING NOISE," upon the condition (amongst others) that I, the said Charles Peachey Holliss, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Charles Peachey Holliss, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

My Invention consists of improved modes of applying packing of elastic, flexible, and non-conducting materials, so as to completely surround the parts treated at all points of contact or connexion, and thereby isolate them, prevent the travelling of sound, and counteract the disagreeable results of vibration.

My Invention is more especially applicable to the axletrees, springs, and

bearings of carriages and vehicles, to the rails, chairs, and sleepers of permanent ways, and to the frames of machines. The packing I employ is composed of india-rubber, vulcanized or prepared, cork, felt, leather, or cloth, separately or combined, but any other flexible, elastic, and non-conducting materials may be employed with advantage when used in the manner herein-after described.

I will now proceed to describe how my Invention may be carried into effect with regard to carriages, having reference to the Drawings hereunto annexed.

Figure 1, Sheet A, shows the axletree of a carriage with my arrangement of packing, and auxiliary union clip, herein-after described and referred to. *b* represents the packing; *a*, the union clip; *c*, the springs; *e*, the top plate.

Before proceeding to describe the mode in which I apply packing to the axletrees of carriages, I will describe the novel clip I use, which I designate the union clip, shown by Figures 1 and 2. This clip for the axletree and springs may be welded or made in one piece with the surface which rests on the axletree extended outwards, so as nearly to abut against the flange of the axletree, and inwards several inches along the axletree, thereby giving a greater bearing surface to receive the packing, and the surface on which the springs rest is to be extended to about six inches, with the ends turned down at right angles for the same purpose, as shown. The springs having a corresponding plate *d* rivetted to them with the ends turned down at right angles over the ends of the clip plate, to prevent the springs from shifting from position, room being allowed for the packing. The use of this clip entirely obviates the necessity of screwing up so tightly as at present practised in the ordinary mode of fixing; a slight top plate *e* screwed on to prevent recoil is all that is necessary to retain the clip and springs in position, while the packing has full scope to exert its elastic force. I then completely surround the axletree and springs at the points of contact *f*, and along the extended surfaces *g* with the non-conducting material, allowing it to return up against the flange of the axletree, and each end of the bracketed plate on springs, so as to completely isolate one from the other. I then apply the union clip and top plates to the axletree and springs, and screw up, when the springs will be fixed up in such a way that they cannot possibly shift from their position, and no sound can be transmitted to or through them. An inverted clip, welded or attached to the bearings of the fore carriage, must be applied to the top of the fore springs, and packed as described in reference to the union clip, the spring having a fixing plate attached to it, the same as on the under side. In fixing the scroll irons of springs and other parts to the body and under carriage, I bore the holes of greater diameter than the bolts

used, so as to admit of the packing *b* being applied round the bolts *i*, Figure 3, the heads of which should be of greater diameter than usual, to permit a greater surface of packing being used than could otherwise be done, and I prefer that the bolts should be made with bevilled necks under the ordinary shaped head, and I then apply a corresponding bevilled washer or collar at the opposite end, the borings at each end being bevilled to correspond. This plan ensures the bolts retaining their central position; the non-conducting material is then to be applied round the bolts under the heads and nuts with washers, and between the parts to be attached, and the screwing up to be effected in the ordinary manner. Although it is possible to isolate the body from the scroll or other bearing without increasing the size of the holes in the iron *l*, as shown by Figure 3, Sheet A, yet it is preferable to widen them when practicable, and it is also desirable to widen the surfaces of all bearings, so as to give a greater area for the use of packing.

Figure 5, Sheet A, represents my mode of applying packing in connection with an intervening metallic pad *m* between the shackles, where the side springs unite with the cross springs or other bearings, so as to cut off the transmission of sound from one to the other, the metallic pad giving a greater bearing surface. This arrangement, together with the use of the union clip and the packing at axletree and springs, will be found sufficient for "Hansom" cabs without further application of my Patent. The centre or pivot pin on which the fore carriage turns should be bored for the packing, and packed in the manner herein-before described, with the addition of a tube *n*, Figure 4, for the pin *o*, Figure 4, to work in, which I fix with flange nuts *p*, *p*, outside and inside the body or other part to keep it in position, and retain the packing, as shown by Figure 4.

In applying my Invention to railway carriages, omnibusses, or similar vehicles, I prefer to attach the under carriage and springs to a frame of iron or wood, or both combined, and then imbed the body on the frame, applying the packing and isolating the connecting bolts, as herein-before described, by which means I get a twofold isolation; I also apply packing to the tires of wheels of carriages.

Figure 9, Sheet A, shows my mode of carrying this into effect. The first tire *r* has a groove in the centre of its entire periphery, I then apply the non-conducting material *b*, and then a second tire *v* of less substance than the first, and with a corresponding bead *v* to sink into the groove of the first tire, to prevent it from moving from its position. The outer tire may either have a keyed joint or a lapped joint, and screwed on, and must be put on under pressure, to ensure its fitting tight, and it must be put on cold.

Having now described how my Invention is applicable to carriages, I will proceed to describe my system of packing as applied to railways.

It is well known that the rumbling noise produced by the passage of a train along an iron bridge often frightens horses, and causes serious accidents, more especially where such bridges cross the crowded streets of the metropolis, and moreover the vibration which ensues from the transit of the train has a very injurious effect on the wrought iron of which such bridges are generally constructed, and the object of this part of my Invention is to remedy both of these evils, and to prevent noise in any part of a line where it may be deemed desirable to apply my packing. I apply packing between the sleeper and chair, and between the chair and rail, and around the bolts and nuts, so as to interpose the packing between the surfaces which would otherwise come into contact and produce noise when a train passed over them.

Figures 6, 7, and 8, Sheet B, show my several modes of carrying out this part of my Invention. It will be seen by reference to these Drawings that the chair is hollowed out in the inner part to admit of the insertion of the packing, the bolts surrounded with a ring packing, and the borings made larger than the bolts to admit of its application. In fixing the rail in the chair I prefer to use a set screw with an iron plate to prevent its shifting or dragging the packing out of position in the act of fixing, and where wedges are used I prefer to use two reversed wedges and an intervening plate of iron next the packing for the inner wedge to work against, to prevent the packing from being driven from position, and pin the two wedges together after they are driven up, to prevent their becoming loose or moving from their position.

My Invention also relates to the application of packing to the frames of machines, and to other parts of machinery. I apply the packing between the floor, foundation, or table, and the supports, legs, or frame, the bolts being packed with rings in the same manner as herein-before described, and complete isolation being effected. Sewing machines packed according to my mode do not make nearly so much noise as in ordinary, and the shafting and gearing of machines may be packed and isolated in the manner I have described with reference to carriages and rails, with a view to the prevention of vibration, friction, and noise.

Having now described the nature of my said Invention, and in what manner the same is to be performed, I wish it to be understood that I do not confine myself to the precise forms of applying packing herein-before described and shown by the Drawings annexed hereunto, for these may be varied to some extent without departing from the principle of my Invention, which is to effect the perfect isolation of the parts whose contact otherwise would

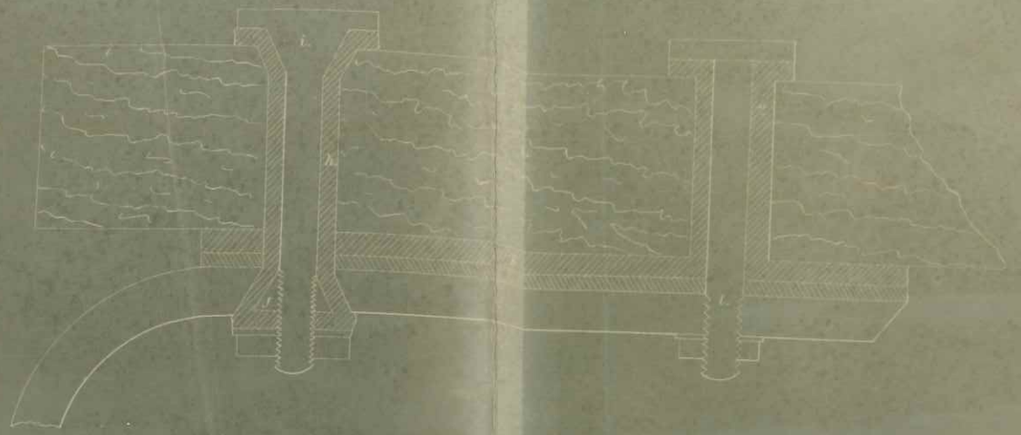
produce noise; and I claim and desire to secure by these Letters Patent the modes of packing herein-before described and shown by the Drawings, by which perfect isolation is produced; and I claim the use of the union clip and the metallic pad, herein-before described and shown applied to carriages.

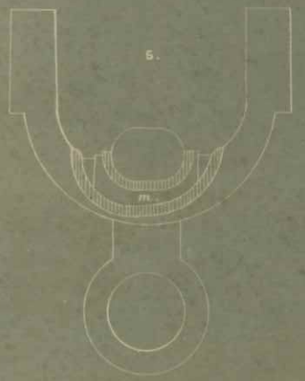
In witness whereof, I, the said Charles Peachey Holliss, have hereunto set my hand and seal, this Twenty-fourth day of December, in the year of our Lord One thousand eight hundred and sixty-six.

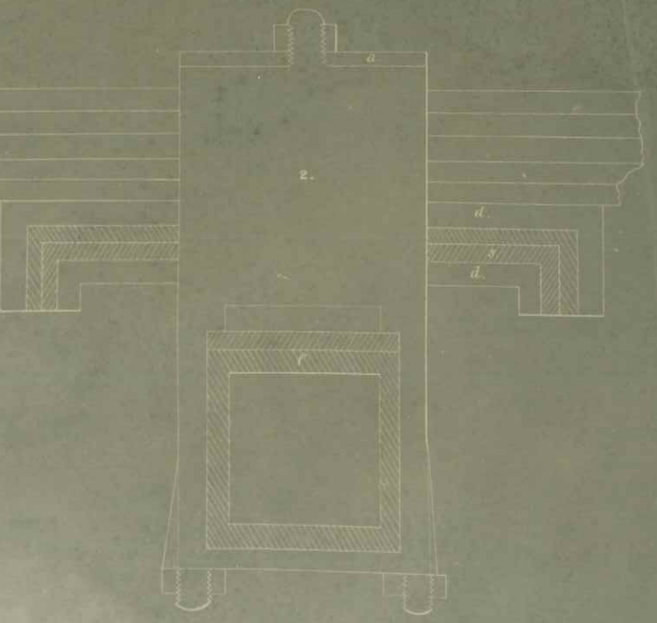
CHA^{S}. P. HOLLISS. (L.S.)

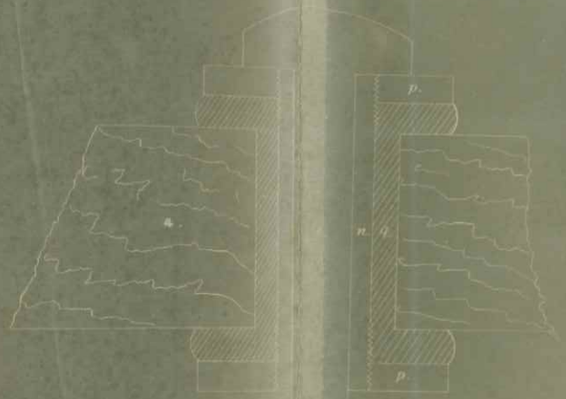
LONDON:
Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1866.

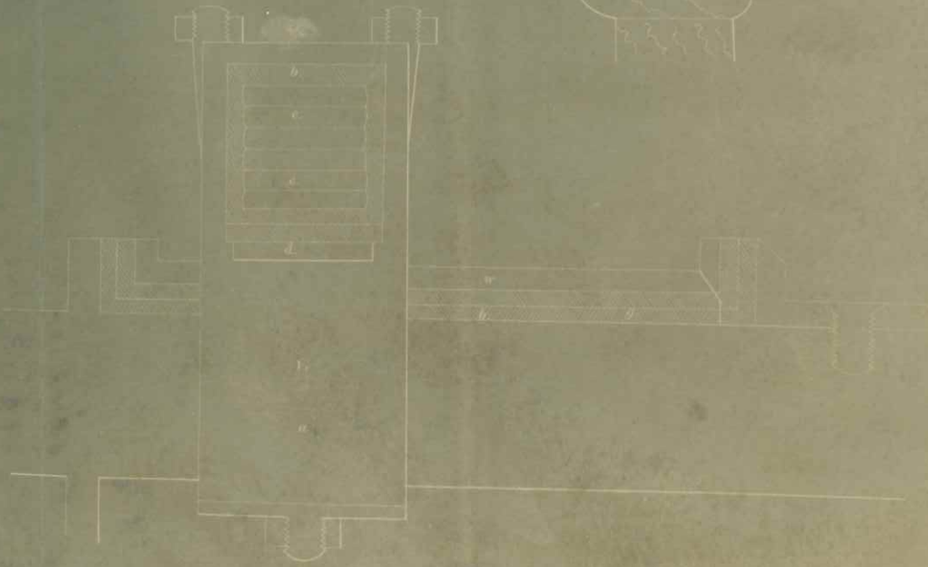
216
9X







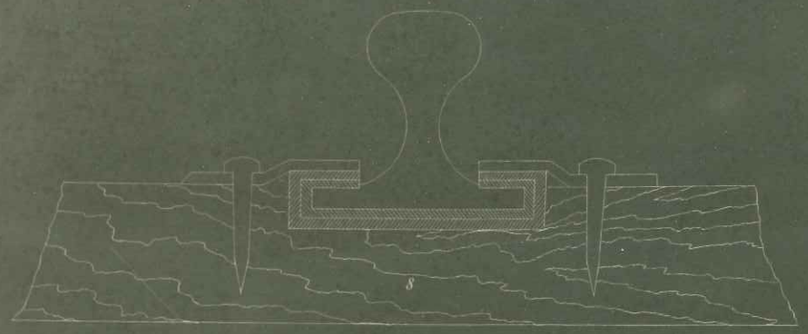


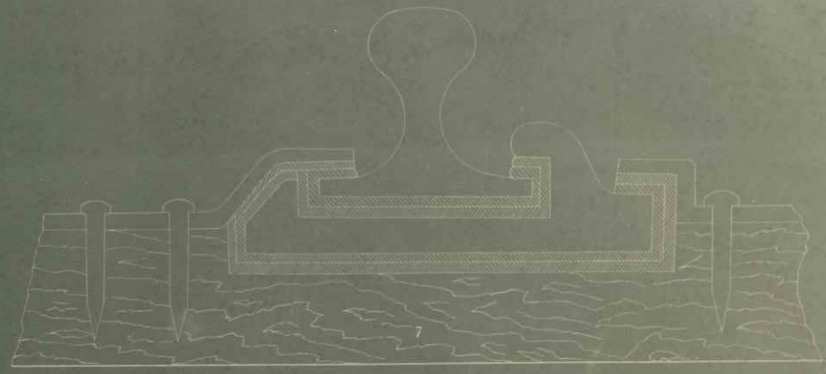


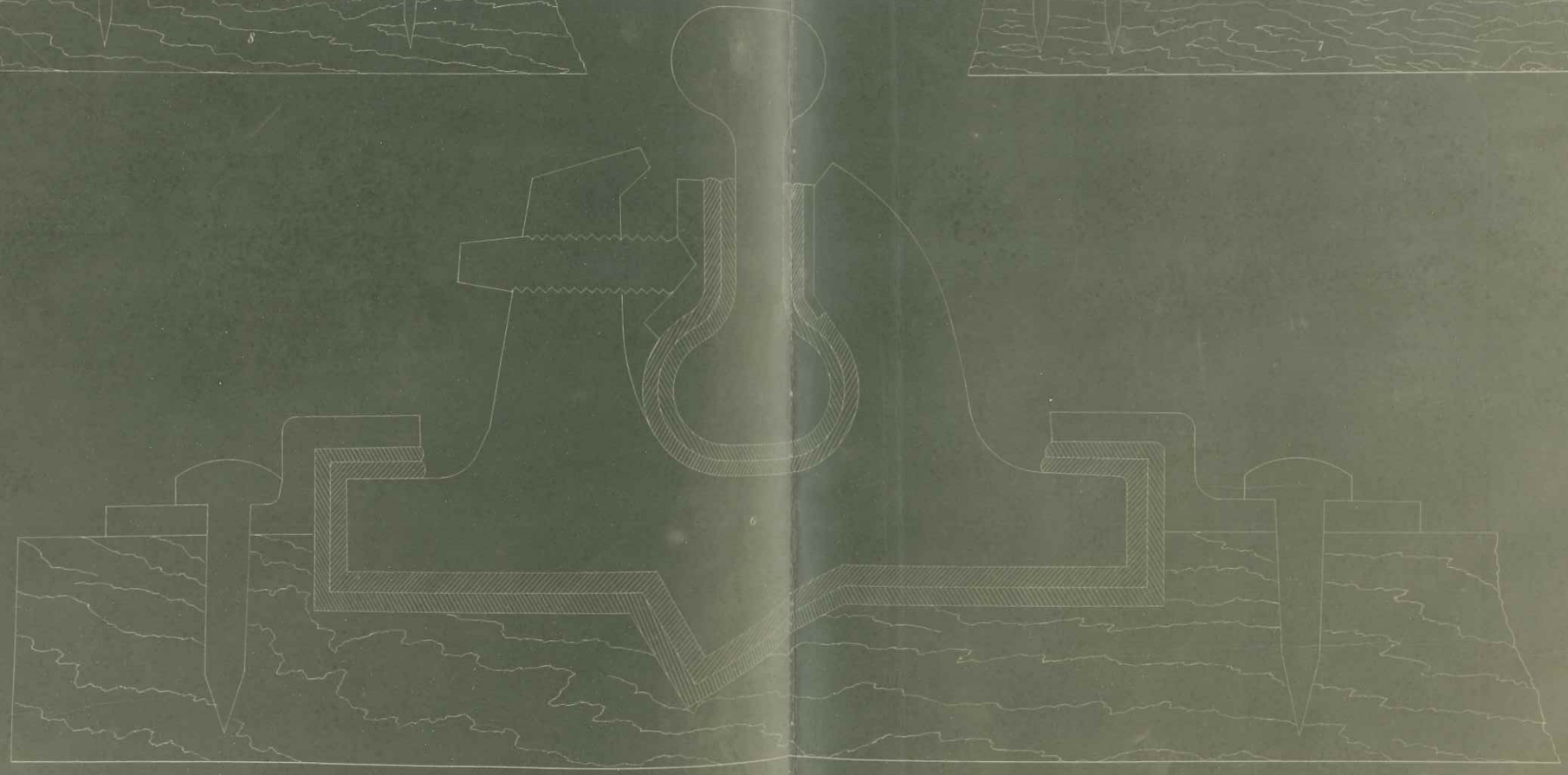
The Abel drawing is not coloured.

Property of U. S. Patent Office
For Examiners Use Only.

Property of U. S. Patent Office
For Examiners Use Only.







The Red. drawing is not colored.

Property of U. S. Patent Office
For Examiners Use Only.

Property of U. S. Patent Office
For Examiners Use Only.